

**Municipality/Organization: Town of Marshfield, MA**

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**EPA NPDES Permit Number: MA041048**

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**MADEP Transmittal Number: W-036194**

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**Annual Report Number**

**& Reporting Period:**

**No. 4 : March 06-March 07**

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## **NPDES PII Small MS4 General Permit Annual Report**

### **Part I. General Information**

**Contact Person: Rod Procaccino**

**Title: Town Engineer**

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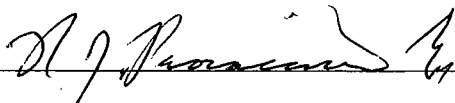
**Rprocaccino@townofmarshfield.org**

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### **Certification:**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

**Signature:**



**Printed Name: Rod Procaccino**

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**Title: Town Engineer**

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**Date: April 30, 2007**

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## Part II. Self-Assessment

The Town of Marshfield's stormwater management activities for the fourth year of the General Permit (March 2006 through March 2007) were in compliance with the Notice of Intent (Massachusetts DEP form BRP WM 08A) and schedule submitted dated July 21, 2003. The following assessment of activities that were included in the plan is provided below:

**Public Education:** 1. Continue Partnership with North and South River Watershed Association (NSRWA) (BMP ID No.1) The Town continues it's support of NSRWA Greenscapes Program. Brochures and Reference guide are on display at the Town Hall and referenced in the Town's CCR Report. This information is posted on the Town's Website.

The Town's Conservation Agent, Town Planner, and DPW Environmental Engineer attended several workshops regarding Stormwater and Low Impact Development sponsored by Mass. Coastal Zone Management (CZM), Non-point Source Pollution Grant Program on 2-8-07, 2-26-07 and 3-26-07. The Town's DPW staff and the Conservation Agent attended the Stormwater Workshop, sponsored by Stormceptor on 4-11-06 in Mansfield, MA.

(Website - <http://www.townofmarsfield.org>)

### 2. Develop Brochures: (BMP ID No. 2)

The Town added language to the Water Quality Report to emphasize Storm Water Management. This information is sent out on an annual basis. The water quality report was sent out to all customers representing 98% of the Town.

The DPW contracts with the North and South River Association Greenscapes program to send out brochures to single family residences. The brochures promoted alternative landscaping, ground water recharge, pesticide and fertilizer alternatives and water conservation through workshops advertised.

### 3. Develop Web Site for Public Service Posting: (BMP ID No. 3)

The IT department has developed the Town wide website and is responsible for it's maintenance. Visit the Town's website at <http://www.townofmarsfield.org> Access the NPDES Phase II Small MS4 General Permit Annual Report

The Water Quality Report, the DPW's Operational Plan and **new DPW monthly report** is posted on the Town's website

## **Public Participation:**

### **1. Water Quality Testing (BMP ID No. 4)**

No Water Quality Testing was initiated this period by the DPW. Green Harbor is being monitored by volunteers under the direction of Lauri Bianchi, Whitman/Hanson High School Professor and students.

### **Community Cleanup Days (BMP ID No. 5)**

The Town conducted its annual cleanup day in April 2006 (Rid Litter day) The next Rid litter day is scheduled for May 5, 2007.

- 2. An open space committee with representation from the DPW, Town Assessors, and Conservation Commission and other volunteers from the general public developed an Open Space Plan. Watershed protection was the highest priority included in the evaluation criteria. The DPW obtained support and authorization through Open Space Committee and funding from Town Meeting to acquire one 27 acre parcel for watershed and for a water supply protection (Ellis Property).**
- 3. Telegraph Hill Moratorium: The Town imposed a building Moratorium on approximately 35 acres of land subdivided into 5000 and 10,000 sq. foot lots for a period of one year. The Moratorium was extended until Fall of 2007. There are severe erosion and drainage problems related to recent building on steep slopes and poor soils within the old subdivision. A committee was appointed with representation from DPW, Conservation, Building, Planning departments, and 3 private citizens to provide a conceptual plan to address the problems. The committee met several times and the drainage design has advanced and the cost estimate was provided to request funding.**
- 4. A detention sediment forebay along Proprietors Way was cleaned out after a major storm event by volunteer businessman in the community under the direction of the Town's Conservation Agent.**

## **Illicit Discharge Detection and Elimination:**

### **1. Catch basin/Outfall and Receiving Water Mapping (BMP ID No. 6)**

The Town is in it's third year developing GIS Mapping capabilities. The Town's IT dept. contracted to have the

Town flown over to conduct photography in March 2004 in order to obtain the most up to date information at a very high resolution. The Town was last flown over in 1975. A contract was issued to develop the GIS system, which included limited planimetric mapping. The mapping was completed fall of 2004. The Topography Map overlay was added in 2005. This topographical information has been a very useful tool in determining the extent of drainage areas and trouble shooting drainage problems. Approximately 80 percent of the Towns 4500 catch basins, manholes, and outfalls, along with receiving waters were presented on 40 scale maps. The Town's consultant has located and screened a total of 962 outfalls. The locations have been added to the GIS generated Map. There are approximately 20 sites scheduled to be traced back this June for potential erroneous discharges.

## 2. Water Quality Testing (BMP ID No.4)

No testing was conducted other than at Green Harbor River as part of Salt Marsh Restoration Project.

## 3. Regulatory Review (BMP ID No. 7)

The Town of Marshfield, Town of Duxbury, and the Town of Plymouth applied for and received a grant to develop a model storm water management bylaw in 2004. The Town has not moved to implement the bylaw due to extreme budget cutting within the DPW. The Town Planner and DPW staff have been attending Workshops for low impact development. The Town applied for and received a grant from CZM (\$20,000) to provide funding to the area planning group MAPC for technical assistance to three coastal communities. The Town's existing Planning and Zoning regulations will be reviewed for consistency with current stormwater permit requirements.

A Storm Water Overlay district was developed in January and approved at Town meeting April 2006 to control development within the Telegraph Hill.

The DPW developed a Municipal Storm Drain Bylaw and conducted hearings in preparation for April 2007 Town Meeting. Regulations were drafted to allow connections to the Town's municipal drain system as part of the proposed bylaw.

## **Construction Site Runoff Control:**

### **1. Regulatory Review (BMP ID No. 7)**

Storm water management measures are required by subdivision regulation. Historically, these structures required by regulation fail during the construction phase. The BMP's are often short circuited during the initial phases of construction. Town officials have had to issue stop work orders to several developers during the past permit year. The developers were instructed to take corrective action. The DPW, Conservation Dept. and Planning Dept. have recognized the need to require more detailed explanation of construction methods being proposed. Erosion control plans, and proper construction sequencing should be addressed in the model bylaws and corresponding regulations are being developed.

### **2. Permit Enforcement (BMP ID No. 8)**

The Town has issued stop work and enforcement orders on the following subdivisions to address erosion control problems during construction:

Telegraph Hill Moratorium was put in place to stop building, clearing of land and tree removal and until a drainage solution could be recommended, funded and put in place. The Moratorium was extended to Fall 2007. Corrective action was taken by the developer and design engineer to modify a detention basin in Peregrine Woods Subdivision to mitigate flooding down stream.

### **3. Misconnection/ Illegal Dumping (BMP ID No. 9)**

The Town had not discovered any illegal connections or illegal dumping impacting storm water over the past year.

Additional field work will be required after locations are added to the new mapping to verify connectivity and the Municipal Storm Drain Bylaw is approved. The Engineering Division will investigate and field verify connectivity of twenty potential problem sites over the next several months.

## **Post Construction Site Runoff Control**

### **1. Regulatory Review (BMP ID No. 7)**

Several extreme rainfall events occurring just prior to this permit period alerted Town officials to capacity issues with existing drainage structures. During these recent storm events, flooding conditions caused significant erosion and sediment problems to brooks and ponds. Increased development has definitely impacted existing infrastructure despite

of regulation in place. Several problem areas have been identified and the Town is formulating a plan to address at least two specific problems. The Town will be formulating a master drainage plan as part of the newly created DPW Operation Plan.

Telegraph Hill and Stony Brook Subdivision impact to South River St. The Town is using chapter 90 funds (\$25,700) and obtained easements to replace a undersized culvert and will be constructing a drainage collection system with deep sump catch basins including and outfall sediment trap to resolve a flooding issue. The work is complete.

Telegraph Hill Subdivision impact to Peregrine White Drive. The Town obtained approval of a Stormwater Management Overlay District and zoning By-law to regulate building within the Telegraph Hill and Snake Hill as areas part of a plan to address the drainage problem. Developers will be required to submit a site plan to a committee for compliance review prior to getting a building permit. The Town is under contract to install a 36 inch dia. overflow drain pipe from the natural detention basin adjacent to Cohasset (Eagle Road) across South River St. to mitigate flooding down stream. ( \$57,720 ). The developer of lots on Peregrine White Drive will be constructing sediment forebays and trunkline.

#### Permit Enforcement (BMP ID No. 8)

The Contractors from both subdivisions had originally agreed to participate to correct the South River St. drainage problem mentioned above however it is uncertain at this time when these issues will be resolved. The Town has obtained authorization from Town Meeting in (April 2006) to obtain the necessary easements to construct a drainage trunkline in Parkway and in Cohasset Ave. for individual lot owners to tie into when the moratorium is lifted in fall of 2007. Funding to purchase 4 parcels (\$60,000 ) for the outfall location was obtained at Town Meeting. A drainage collection system will be constructed, including sediment forebay and detention area.

#### **Municipal Good House Keeping:**

##### 1. Improved Street sweeping (BMP ID No. 11)

The Town had implemented a plan to sweep the entire Town during the spring of 2006. The Town did increase the budget in 2006 for road sweeping to be able to get the sand off the road a month earlier.

## 2. Improved Catch Basin Cleaning (BMP ID No. 12)

There are approximately 1200 manholes, 3200 catch basins and 100 drop- inlets that require extensive cleaning. The Town was unable to obtain additional funding to hire a private contractor to expedite the catch basin cleaning process. Approximately 60 structures of the drainage system were repaired of the 400 catch basins that were reported as in need of masonry repair or outright replacement. The remaining work will be accomplished partly with in house staff and by contract through state funding. Approximately half the catch basins were cleaned by subcontract during the Spring 2006 due to available funding. Approximately 40% of the remaining 50% of the catch basins were cleaned in July with funding from the new fiscal year. Catch basin cleaning and street sweeping will start in April 07 by Town Forces and in July 07 by contract.

Extensive brush clearing and trash collection was conducted by the DPW at the Rexhame drainage ditch this past winter.

## 3. Household Hazardous Waste Days: (BMP ID No. 13)

The Town conducted its Household Hazardous Waste Day on September 16, 2006 and continues to participate in the South Shore Recycling Organization. As a member of this organization residents are allowed to participate throughout the year in hazardous waste collection days offered by surrounding member Towns.

## 4. Drain Stenciling: (BMP ID No. 14)

The Town has taken no action to date.

5. The DPW investigated solutions to improve a degraded pond located at the Town's Landfill which is part of the Landfill's Stormwater Management System. The composting operation is affecting the water quality of this isolated manmade pond.

## **BMP's for Meeting TMDL:**

### 1. GIS Mapping Priority Waters and Drainage Patterns (BMP ID No. 6)

The Towns GIS program is under way and the DPW obtained planimetric mapping in the fall of 2004 new topographical mapping and assessors map overlay in 2005 during the past reporting period. The drainage outfall locations have been mapped through the Town's

Geographic Information System (GIS) which includes the storm drain system, receiving waters and watersheds. The Town's detention ponds were located and mapped out.

#### Water Quality Testing (BMP ID No. 4)

Water quality testing was performed in the Green Harbor River. The Town received the draft report on Green Harbor River Tidal Hydraulics Study, by Applied Coastal Research and Engineering, Inc. March 2007 and draft report on Hydrology and Ecological Analysis of the Upper Green Harbor River, by Dr. David S. White & Dr. Brian L. Howes Coastal Systems Program February 23, 2007. Louis Berger Group Inc. is the Prime Contractor. This study was funded by a Grant obtained through CZM and the Gulf of Maine Council on Marine Environment. The Tidal Hydraulics portion of the study considered the impact of altering the flow through the tide gates for the purpose of improving the water quality of a severely degraded upper Green Harbor. The water quality portion of the project involved estimate of freshwater flow and nutrient discharge from the fresh water portion of the Green Harbor River, evaluate the nutrient loading from two tributaries Bass Creek and Wharf Creek, and evaluate sediment/ porewater constituents in restricted and unrestricted wetland habitats within the Green Harbor River. The DPW helped fund the project by providing Topographical Survey of the area with one foot contour accuracy. The DPW provided contract labor to support inspection and manipulation of the tidegates.

The DPW is reviewing a proposed drainage improvement at the Union St. Bridge proposed as part of the Bridge reconstruction project. The DPW is working with the Conservation Agent and NSWRA to improve the proposal.

#### 2. Storm Water Modeling (BMP ID no. 15)

Storm water modeling was conducted by Amory Engineers to resolve the flooding problem near 1237 South River St. and the Telegraph Hill area between Hingham Ave and Cohasset Ave. The culvert replacement at 1237 and catch basins were completed in the Fall 2006 and the drainage improvement in South River at Peregrine White Drive is under contract to start in May of 2007. The GIS Mapping and Topographical information was made available to the consultant to expedite the project. There was a significant savings realized.

The Town has obtained approval to acquire property for a sediment forebay and retention area for a proposed drainage collection system in South River St. near Parkway. (Cost \$238,000) The design was approved by Conservation Commission which included off site mitigation requirement to rehabilitate a sediment forebay at the intersection of Church St. and Ferry St. The modeling and design



for the Telegraph Hill Drainage Trunkline was completed in February. Town meeting approved design funding and authorized land takings and easements for the project.

The following drainage improvement project requests have been submitted to April 2007 Town Meeting:

Telegraph Hill Drainage Trunkline	\$360,000	Design is Complete
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Summer St. and Ferry St. Drainage	\$ 200,000	Design is under way
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Rexhame/ Fieldston Drainage Construction	\$ 230,000	Design is complete
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Portion to match Potential Hazard Mitigation Grant (Total \$920,000) Grant Decision – May 2007

The Army Corp. Coastal Grant program ruled not applicable to both Bass Creek and Rexhame/ Fieldston Drainage Construction.

Bass Creek dredging/channel restoration	\$ 650,000	Permitting under way.
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EPA Phase II- SW Compliance Testing and Mapping	\$25,000	For Illicit Detection and Elimination
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End of Report.